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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,027	11/04/2003	Walter Castleberry	N2215-63142	6161

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BRADLEY ARANT ROSE & WHITE LLP
200 CLINTON AVE. WEST
SUITE 900
HUNTSVILLE, AL 35801

EXAMINER
NGUYEN, STEVE N

ART UNIT	PAPER NUMBER
2138	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/701,027	CASTLEBERRY ET AL.
	Examiner	Art Unit
	Steve Nguyen	2138

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>04 November 2003</u>.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-21</u> is/are pending in the application.

    4a) Of the above claim(s) <u>11-20</u> is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-110</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>04 November 2003</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>8/30/04; 8/23/05</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Restriction to one of the following inventions is required under 35 U.S.C. 121:

    I.   Claims 1-10 and 21, drawn to a method for detecting errors in a meter comprising receiving data signals, analyzing the signals to detect a missing signal, and compensating for the missing signal by adding a predetermined value to a sequence counter, classified in class 714, subclass 807.

    II.   Claims 11-20, drawn to a method for detecting errors in a meter comprising receiving data signals, analyzing the signals to detect a missing signal, and compensating for the missing signal by adjusting a variable that indicates the last valid direction of the meter, classified in class 714, subclass 747.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group I and Group II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the invention

of Group I does not require the indication of the direction of the meter in order to

compensate for a missing data signal. The subcombination has separate utility such as

maintaining an indication of the last valid direction of the meter.

Because these inventions are independent or distinct for the reasons given

above and have acquired a separate status in the art in view of their different

classification, restriction for examination purposes as indicated is proper.

Because these inventions are independent or distinct for the reasons given

above and the inventions require a different field of search (see MPEP § 808.02),

restriction for examination purposes as indicated is proper.

During a telephone conversation with David Mixon on 6/22/2006 a provisional

election was made without traverse to prosecute the invention of Group I, claims 1-10

and 21. Affirmation of this election must be made by applicant in replying to this Office

action. Claims 11-20 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

2.   The drawings are objected to because they contain hand written reference

numbers.

The submitted drawings also appear to be in color, making it difficult to

distinguish between certain elements and reference numbers. Color photographs and

color drawings are not accepted unless a petition filed under 37 CFR 1.84(a)(2) is

granted. Any such petition must be accompanied by the appropriate fee set forth in 37

CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and,

unless already present, an amendment to include the following language as the first

paragraph of the brief description of the drawings section of the specification:

> The patent or application file contains at least one drawing executed in color. Copies of this patent or
> patent application publication with color drawing(s) will be provided by the Office upon request and
> payment of the necessary fee.

Color photographs will be accepted if the conditions for accepting color drawings

and black and white photographs have been satisfied. See 37 CFR 1.84(b)(2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
        obviousness or nonobviousness.

3.   Claims 1, 9, 10, and 21 rejected under 35 U.S.C. 103(a) as being unpatentable

over Colton et al (6,509,841; hereinafter referred to as Colton) in view of Herzl (US Pat.

4,019,384).

As per claim 1:

Colton teaches a method for correcting data signal errors in a meter, comprising:

- receiving ordered data signals from the meter (Fig. 1; col. 4, lines 14-18).

Not explicitly disclosed by Colton is:

- analyzing the sequence of the ordered data signals to detect a missing signal;
  and

- compensating for the missing data signal by adding a predetermined value to a
  sequence counter.

Herzl in an analogous art teaches a flow meter system for analyzing the data signals
to detect a missing signal (Fig. 7 and col. 8, lines 1-3; Herzl teaches determining the
meter error) and compensating for the missing signals by subtracting a predetermined
value from a sequence counter (col. 7, lines 54-68; it would have been obvious to add,
instead of subtract, a predetermined value to the counter depending on the meter error
curve shown in Fig. 7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the
time the invention was made to use the flow meter of Herzl in the communication
system of Colton. This modification would have been obvious to one of ordinary skill in
the art, at the time the invention was made, because one of ordinary skill in the art
would have been motivated to do so because the system of Colton allows for the
monitoring of metering devices from a remote location (Colton; col. 1, lines 40-42).

As per claim 9:

Herzl further teaches the method of claim 1, where the sequence counter counts up (col. 7, lines 1-3).

As per claim 10:

Colton and Herzl teach the method of claim 1 above, but do not explicitly mention the sequence counter counts down. However, one of ordinary skill in the art at the time the invention was made would have realized that the counter of Herzl is a means of sequentially keeping track of the flow rate, and that operating the counter inversely would have been functionally equivalent.

As per claim 21:

Colton teaches method for detecting errors in a meter, comprising:

- step for receiving a sequence of data signals of the meter (Fig. 1; col. 4, lines 14-18);

Not explicitly disclosed by Colton is:

- step for analyzing the sequence of data signals to detect a missing data signal; and

- step for compensating for a missing data signal.

Herzl in an analogous art teaches a flow meter system for analyzing the data signals to detect a missing signal (Fig. 7 and col. 8, lines 1-3; Herzl teaches determining the meter error) and compensating for the missing signals by subtracting a predetermined value from a sequence counter (col. 7, lines 54-68).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the flow meter of Herzl in the communication

system of Colton. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have been motivated to do so because the system of Colton allows for the monitoring of metering devices from a remote location (Colton; col. 1, lines 40-42).

4.   Claims 2, 3, and 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Colton in view of Herzl as applied to claim 1 above, and further in view of Minko (US Pat. 5,963,551).

As per claim 2:

Colton and Herzl teach the method of claim 1 above. Not explicitly disclosed is where a missing data signal is detected by calculating a variable based on a present data signal and a previous data signal in the sequence of ordered data signals. Minko in an analogous art teaches a communication system for transmitting and receiving ordered data signals in which a missing signal is detected by subtracting the sequence index of a previous data signal with the index of a present data signal (col. 7, lines 7-17).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the method of Minko in the system of Colton and Herzl. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that a missing data signal out of a sequence of signals could have been detected using the method of Minko.

As per claim 3:

Minko further teaches the method of claim 2, where values related to the

previous data signal are stored in a status register (col. 7, lines 7-9).

As per claim 6:

Minko further teaches the method of claim 2 above, but does not explicitly state

the variable is calculated by subtracting a binary value of the previous data signal from

a binary value of the present data signal. However, it would have been obvious to a

person of ordinary skill in the art at the time the invention was made to subtract a binary

value of the previous data signal from a binary value of the present data signal since the

data index is a binary number.

5.   Claims 4 and 5 rejected under 35 U.S.C. 103(a) as being unpatentable over

Colton in view of Herzl in view of Minko as applied above, and further in view of Omura

(US Pat. 5,495,438).

As per claims 4 and 5:

Colton, Herzl, and Minko teach the method above. Not explicitly disclosed is a

non-volatile ferro-electric random access memory component. Omura in an analogous

art teaches a ferro-electric random access memory component (abstract).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time the invention was made to the memory of Omura in the system of Colton,

Herzl, and Minko. This modification would have been obvious to one of ordinary skill in

the art, at the time the invention was made, because one of ordinary skill in the art

would have recognized that the memory of Omura has a long life (col. 1, lines 62-65).

6.   Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Colton in

view of Herzl in view of Minko as applied above, and further in view of Ashida (US Pat.

4,538,119).

As per claim 7:

        Colton, Herzl, and Minko teach the method of claim 6 above. Not explicitly

disclosed is where the subtracting is done by adding the two's complement of the binary

value of the previous data signal to the binary value of the present data signal.

However, Ashida teaches that subtraction of binary data is performed using two's

compliment addition (col. 7, lines 6-8).

        Therefore, it would have been obvious to a person of ordinary skill in the art at

the time the invention was made to use two's compliment addition for subtracting the

sequence indexes. This modification would have been obvious to one of ordinary skill

in the art, at the time the invention was made, because one of ordinary skill in the art

would have recognized that subtraction of binary data is performed using two's

compliment addition, as disclosed by Ashida in col. 7, lines 6-8.

7.   Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Colton in

view of Herzl as applied to claim 1 above, and further in view of Johnson et al (US Pat.

5,673,252; hereinafter referred to as Johnson).

As per claim 8:

Colton and Herzl teach the method of claim 1 above. Not explicitly disclosed is where a missing data signal is detected by determining whether a binary state value for a present data signal is the same as a binary state value for a previous data signal.

Johnson in an analogous art teaches a communications network for communicating with a utility meter in which a missing signal is detected by determining whether a binary state value for a present data signal is the same as a binary state value for a previous data signal (col. 37, lines 10-13; the binary value of the ACK must be the same as the ACK of a previous data signal. If the previous data signal generated a NAK, the value is different from that of an ACK).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the error detection scheme of Johnson in the system of Colton and Herzl. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that the error detection method of Johnson would have been able to detect errors in the system.
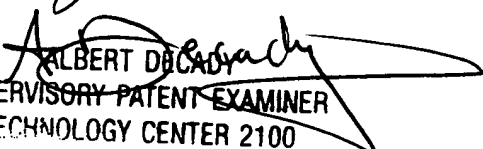
Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steve Nguyen whose telephone number is (571) 272-7214. The examiner can normally be reached on M-F, 9am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steve Nguyen
Examiner
Art Unit 2138

ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100